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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,657	11/14/2003	Yasuo Kan	245402007800	9851
25226	7590	09/30/2005	EXAMINER	
MORRISON & FOERSTER LLP 755 PAGE MILL RD PALO ALTO, CA 94304-1018			NGUYEN, DUNG T	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/713,657

Applicant(s)

KAN, YASUO

Examiner

Dung (Michael) T. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14-18 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/14/03,08/25/05</u> | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 8-10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yamaguchi et al. (2004/0159848).

With respect to claim 1, Admitted prior art shows in Fig.12 a first clad layer 2 of a first conductivity type, an active layer 3, and a second clad layer 4 of a second conductivity type having a striped ridge portion, successively stacked on a semiconductor substrate 1 of the first conductivity type, a saturable absorption layer within an embedding layer 9 formed on either side surface of said ridge portion and on either flat portion other than said ridge portion in said second clad layer.

Admitted prior art lacks a saturable absorption layer is provided on a material layer having a refractive index greater than that of said second clad layer and not absorbing laser light.

Yamaguchi teach in Fig.9A a saturable absorption layer 44 is provided on a material layer 40 (insulating layer) having a refractive index greater than that of said second clad layer (para.0186) and not absorbing laser light (since layer 40 is an insulating layer and therefore it does not absorb laser light).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art what is taught by Yamaguchi in order to cause no damage in the contact surface between the top contact layer and the top electrode (para.0175).

With respect to claim 6, Admitted prior art discloses in fig.12 a current blocking layer 9 (embedding layer) of a material absorptive to the laser light is formed on an opposite side of said saturable absorption layer as seen from said second clad layer.

With respect to claim 8, Admitted prior art discloses in fig.12 said active layer includes an SCH structure having a light emitting layer sandwiched between two light guide layers 2 and 4, and has an asymmetrical structure in a stacking direction of the layers so that light can spread toward the ridge.

With respect to claim 9, Admitted prior art discloses in fig.12 said light guide layer on the second clad layer side is greater in thickness than said light guide layer on the first clad layer side.

With respect to claim 14, Admitted prior art discloses in fig.12 said embedding layer is formed in a striped ridge shape.

With respect to claim 10, Yamaguchi disclose the second clad layer has a refractive index greater than the first clad layer (para.0186).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art what is taught by Yamaguchi to enhance the controllability to the lateral mode and to accomplish the lateral mode stability 9para.0186).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yamaguchi et al. (2004/0159848) and further in view of Kan et al. (6002701). Admitted prior art and Yamaguchi disclose all limitations of the claim except for the absorption layer having a quantum well structure.

Kan teach the absorption layer having a quantum well structure in fig. 1a-b.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art and Yamaguchi what is taught by Kan in order to allow the energy bandgap of the absorption layer to change in multiple phases and allow laser beams to be absorbed (col.10, 1.37-44).

Claims 3-5, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yamaguchi et al. (2004/0159848) and further in view of Ashida (5949809).

With respect to claim 3, Admitted prior art and Yamaguchi disclose all limitations of the claim except for said saturable absorption layer is sandwiched between two semiconductor layers having their respective bandgaps greater than a bandgap of the saturable absorption layer.

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Ashida teaches in Fig. 1 said saturable absorption layer 7 is sandwiched between two semiconductor layers 6a-b having their respective bandgaps greater than a bandgap of the saturable absorption layer (col.4, l.67 and col.5, l.1-6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art and Yamaguchi what is taught by Ashida to narrow the current into the active layer (col.5, l.65-67).

With respect to claims 4 and 7, Ashida discloses wherein one of the two semiconductor layers sandwiching said saturable absorption layer has a refractive index smaller than that of said second clad layer 4b (col.5, l.46-48).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art and Yamaguchi what is taught by Ashida to confine light without loss of absorption (col.6, l.49-50).

With respect to claim 5, Ashida discloses at least one of upper and lower sides of said saturable absorption layer is covered with a semiconductor layer having the same composition as that of said second clad layer (col.5, l.16 and 30-31).

With respect to claim 11, Admitted prior art and Yamaguchi disclose all limitations of the claim and an AlGaInP based laser and GaAs substrate (page 1, l.33 and page 2, l.3-4 in the specs.) but except for the AlGaAs absorption layer.

Ashida teaches the AlGaAs absorption layer (col.5, l.18-19).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art and Yamaguchi what is taught by Ashida to provide a multimode light beam on a low operating current at low noise and reduce astigmatism (9col.2, 1.36-39).

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yamaguchi et al. (2004/0159848) and further in view of JP2000357842. Admitted prior art and Yamaguchi disclose all limitations of the claim and an AlGaInP based laser, GaAs substrate, and an n type AlGaAs formed on the upper surface of said absorption layer within said embedding layer and having an Al ratio of 0.6 (page 1, 1.33; page 2, 1.3-4; and page 3, 1.20-21) in the specs.) but except for the insulating film.

JP2000357842 teaches the insulating film 11 in Fig. 1.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art and Yamaguchi what is taught by JP2000357842 in order to not absorb lights from the active layer (abstract).

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Yamaguchi et al. (2004/0159848) and further in view of Matsumoto (6865202). Admitted prior art and Yamaguchi disclose all limitations of the claims except for an AlGaAs-based semiconductor lasing part and an AlGaInP-based semiconductor lasing part are formed monolithically into a two-wavelength semiconductor laser.

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Matsumoto teaches an AlGaAs-based semiconductor lasing part and an AlGaInP- based semiconductor lasing part are formed monolithically into a two- wavelength semiconductor laser (col.12, l.37-41).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Admitted prior art and Yamaguchi what is taught by Matsumoto to produce a multi laser with different wavelengths.

#### *Allowable Subject Matter*

Claims 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### **Communication Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



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Michael Dung Nguyen

*James  
Monroe*